

# Roy Luo

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## EDUCATION

### University of Waterloo

*Honours Mathematics, Coop*

Waterloo, Ontario

*September 2023 – April 2027*

### McMaster University

*Mathematics and Statistics*

Hamilton, Ontario

*September 2022 – April 2023*

## TECHNICAL SKILLS

**Languages:** Python, R, SQL

**Platforms and Tools:** PowerBI, Excel, Git

**Libraries:** pandas, NumPy, scipy, scikit-learn, Matplotlib, Plotly, tidyverse, ggplot2

## EXPERIENCE

### Investment Risk Analyst Intern

*Healthcare of Ontario Pension Plan*

January 2024 – April 2024

*Toronto, ON*

- Automated dynamic hedging calculations using Python, reducing manual processing time by 20 hours a month and improving reporting accuracy by 100%.
- Bootstrapped market data to construct time series datasets in Excel, used for 10,000 Monte Carlo simulations to enhance accuracy and reliability of VaR assessments.
- Engineered a stress testing tool that evaluated the impact of real rate fluctuations on billions in both liabilities and fixed-income holdings using data from Snowflake, SAP HANA and SQL Server.
- Streamlined the process for generating liquidity risk reports using matplotlib, reducing the turnaround time by 33% and ensuring compliance with financial regulations.

### Simcorp Dimension Intern

*Precision Insight Consulting*

May 2023 – August 2023

*Markham, ON*

- Imported equity/bond trades using built-in tools, mapping them to transaction codes and performing instrument type validation with a 99.5% accuracy rate.
- Configured and managed batch jobs for data extraction, optimizing data handling and processing efficiency and saving approximately 15 hours per week of manual work.
- Constructed a reference file documenting daily CAD/USD settlements in Excel and NAV reconciliation reports in Python, reducing reporting errors by 100% and enhancing data accessibility and accuracy for further analytical purposes.
- Managed, reviewed, and allocated Jira tickets, resulting in a 95% resolution rate while ensuring seamless coordination, improved task efficiency, and team productivity.

## PROJECTS

### Live Crypto Orderbook Dashboard | *R, SQL Server, PowerBI*

- Developed an R script to extract, clean and reformat live orderbook data from a websocket feed transmitting 25000+ Bitcoin orders a minute.
- Uploaded and stored data in SQL Server, which was loaded into PowerBI using DirectQuery, resulting in a 50% reduction in dashboard loading time compared to traditional data loading methods.
- Maintained a near real-time cryptocurrency orderbook dashboard with a refresh rate of 1 second, displaying important metrics like mid-market rate, order prices, market depth, and bid-ask spread.

### League of Legends Jungle Tracker | *Python, pandas, Plotly*

- Developed a Python application with a Streamlit UI to retrieve data from a REST API based on user input.
- Utilized pandas to process data, generating interactive Plotly visualizations on-demand.
- Implemented algorithms to identify specific players in ongoing matches and extract targeted data.
- Parsed through JSON data and handled API errors using requests library.
- Visualized players' in-game positions at defined time intervals in historical matches.